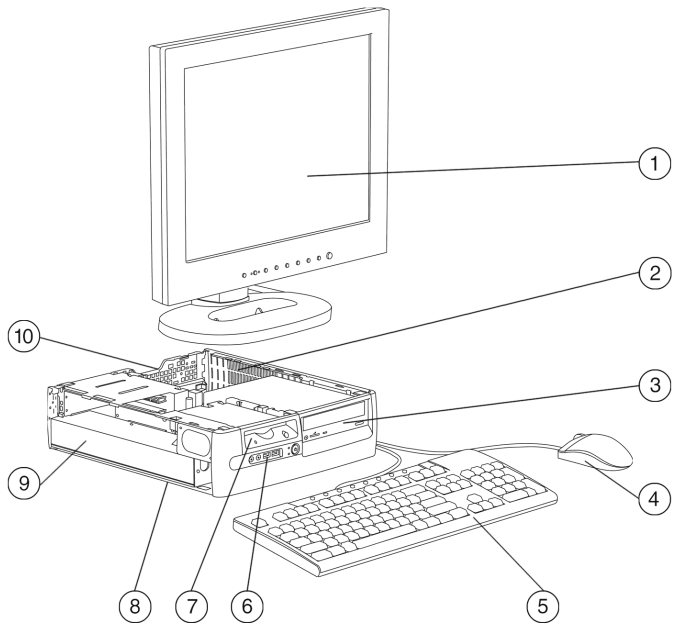
Overview

Small Form Factor

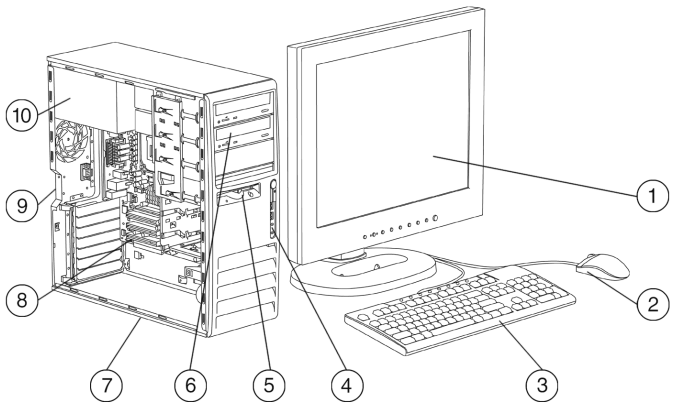
10 x 33.8 x 38.3 centimeters / 3.95 x 13.3 x 15.1 inches



1. Monitor Sold Separately
2. Expansion: 2 full-height PCI slots 1 low-profile AGP 8X slot
3. 1 3.5" internal bay and 1 5.25" external bay for CD-ROM, DVD-ROM, CD-RW or Combo Drives
4. 2-Button Scroll Mouse
5. Easy Access Keyboard
6. 2 USB 2.0, headphone and microphone
7. Optional diskette drive or 3.5" external bay
8. Can also be configured as a tower with tower stand! Tower stand ships standard with each PC
9. 185W Power Supply
10. Rear I/O: 4 USB 2.0, 1 standard serial port, 1 optional serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, audio in/out

Convertible Minitower

44.8 x 16.7 x 45.2 centimeters / 17.65 x 6.6 x 17.8 inches

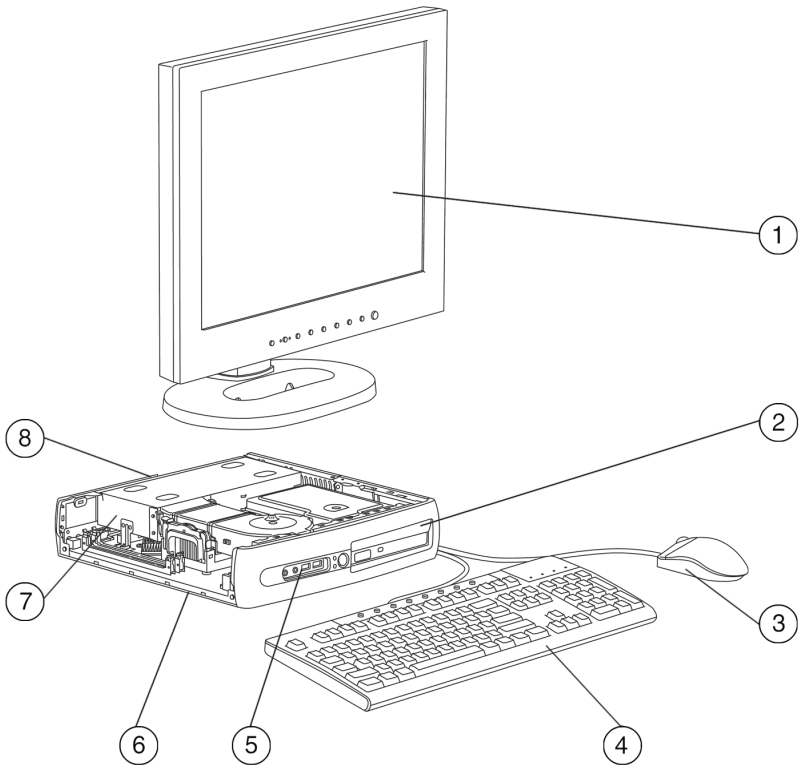


1. Monitor Sold Separately
2. 2-Button Scroll Mouse
3. Easy Access Keyboard
4. 2 USB 2.0, headphone and microphone
5. Optional diskette drive or 3.5" external bay
6. 2 3.5" internal bays and 3 5.25" external bays for CD-ROM, DVD-ROM, CD-RW or Combo Drives
7. Industry's only convertible minitower for easy configuration to desktop or minitower!
8. Expansion: 3 full-height PCI slots (2 additional with optional PCI extender card) 1 AGP 8X slot
9. Rear I/O: 4 USB 2.0, 1 standard serial port, 1 optional serial port, 1 parallel port, 2 PS/2, 1 RJ-45, 1 VGA, audio in/out
10. 240W Power Supply

Overview

Ultra-slim Desktop

7 x 31.5 x 33.2 centimeters / 2.75 x 12.4 x 13.07 inches



1. Monitor Sold Separately
2. Multibay supports CD-ROM, DVD-ROM, CD-RW, Combo or Hard Drive
3. USB 2-Button Scroll
4. USB Easy Access Keyboard
5. 2 USB 2.0 headphone and microphone
6. Can also be configured as a tower with tower stand! Tower stand ships standard with each PC
7. 150W Power Supply
8. Legacy free rear I/O: 4 USB 2.0, 1 RJ-45, 1 VGA, audio in/out

At A Glance

- Intel® Pentium® 4 and Celeron™ processors
- Intel 865G chipset with Intel Extreme 2 integrated graphics
- Integrated Broadcom NetXtreme Gigabit ethernet for HP
- 400, 533 and 800-MHz processor front side bus support
- Intel HyperThread support
- SMART III Ultra ATA/100 Hard Drives
- SoundMax Digital AC97 integrated audio with internal speaker
- Standard MultiBay drive on ultra-slim desktop
- MultiBay support on small form factor and convertible minitower (optional drive adapter is required)
- Pre-loaded Manageability tools
- Energy Star compliance with energy-saving features
- Protected by HP Services, including a 3-3-3, standard warranty. Terms and conditions vary by country. Certain restrictions and exclusions apply.

HP Compaq Business Desktop d530

All D530's come with:

Intel 865G chipset

Integrated Intel Extreme graphics

Integrated Broadcom NetXtreme Gigabit Ethernet for HP

Integrated AC97 audio

1.44 MB floppy drive (SMT and SFF only)

Convertible MT and Small Form Factor favorable configurations ship standard with dual channel memory (2 DIMMs ex. 256MB will = 2 x 128MB DIMMs). The Ultra-Slim DT favorable configurations ship standard with single channel memory. (1 DIMM ex. 256MB will = 1 X 256MB DIMM)

Model Key

Example: **d530s/P2.66/40d/c/512b/3n**

D530s	D530 small form factor
D530c	D530 convertible minitower
D530u	D530 ultra slim dt
Processor Speed	
C2.2	Celeron 2.2GHz
P2.66	P4 2.66GHz (533MHz)
P2.6C	P4 2.6GHz (800MHz)
P2.8	P4 2.8GHz (533MHz)
P2.8C	P4 2.8GHz (800MHz)
Hard Drive	
40	Hard Drive Size
b	7200 RPM Hard Drive Speed
Removable Storage	
c	CD-ROM
r	CDRW
d	DVD
x	no removable storage
Memory Size	
512	Memory size
Memory Speed	
e	DDR333Mhz dual channel
d	DDR333Mhz single channel
OS	
2	Windows 2000
4	XP
NIC	
N	nic

Small Form Factor	
ww DG058A#ABA	d530s/P2.66/40b/c/256e/4n
DG784A#ABA	d530s/P2.66/40b/c/256e/2n
ww DG781A#ABA	d530s/P2.66/40b/c/512e/4n
DG782A#ABA	d530s/P2.66/40b/d/512e/4n
DG783A#ABA	d530s/P2.66/40b/r/512e/4n
ww DG059A#ABA	d530s/P2.8/40b/c/256e/4n
DG060A#ABA	d530s/P2.8/40b/c/512e/4n
*DK665A#ABA	*d530s/P2.6C/40b/c/512e/4n
ww DS833A#ABA	d530s/P2.8c/40b/d/512d/4n
* DK666A#ABA	*d530s/P2.8C/80b/c/512e/4n
Convertible Minitower	
ww DG061A#ABA	d530c/P2.66/40b/c/256e/4n
DG769A#ABA	d530c/P2.66/40b/c/256e/2n
DG768A#ABA	d530c/P2.66/40b/r/512e/4n
ww DG767A#ABA	d530c/P2.66/40b/c/512e/4n
ww DG062A#ABA	d530c/P2.8/40b/c/256e/4n
DG063A#ABA	d530c/P2.8/40b/c/512e/4n
*DK667A#ABA	*d530c/P2.6C/40b/c/512e/4n
*DK668A#ABA	*d530c/2.8C/80b/c/512e/4n
Ultra-Slim Desktop	
ww DG009A#ABA	d530u/P2.66/40b/x/256d/4n
ww DG008A#ABA	d530u/P2.66/40b/c/256d/4n
ww DG135A#ABA	d530u/P2.66/40b/c/512d/4n
ww DG010A#ABA	d530u/P2.8/40b/c/256d/4n
DG657A#ABA	*d530c/P2.6C/40b/c/512d/4n
DK795A#ABA	*d530c/2.8C/80b/c/512d/4n

NOTE: ww = Worldwide sku

* skus available via HP direct only - channel and reseller partners can orders skus but will not be inventoried

Standard Features - Custom Components

		USDT	SFF	CMT
Processor and Speed - One of the following	**Intel Celeron Processors** with 400-MHz Front Side Bus, 128KB L2 cache			
	2.3-GHz	X	X	X
	2.6-GHz	X	X	X
	Intel Pentium 4 Processors with 800-MHz Front Side Bus, 512KB L2 cache with HyperThread			
	2.6-GHz	X	X	X
	2.8-GHz	X	X	X
	3.0-GHz	X	X	X
	3.2-GHz	X	X	X
	Intel Pentium 4 Processors with 533-MHz Front Side Bus, 512KB L2 cache			
	2.66-GHz (without HyperThread)	X	X	X
	2.8-GHz (without HyperThread)	X	X	X
	3.06-GHz (without HyperThread)	X	X	X
Hard Disk Drive - One of the following	40-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	80-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	160-GB 7200 rpm SMART III Ultra ATA/100	X	X	X
	2nd hard drive, 40-GB 7200 rpm SMART III Ultra ATA/100		X	X
	2nd hard drive, 80-GB 7200 rpm SMART III Ultra ATA/100		X	X
	2nd hard drive, 160-GB 7200 rpm SMART III Ultra ATA/100		X	X

Standard Features - Custom Components

Memory - One of the following	128-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 128)	X	X	X
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 256)	X	X	X
	256-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 128)	X	X	X
	384-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 128, 1 x 256)	X	X	X
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (1 x 512)	X	X	X
	512-MB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 256)	X	X	X
	1-GB DDR Synch Dram PC2700 (333-MHz) Non ECC (2 x 512)	X	X	X
	256-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 128)	X	X	X
	512-MB DDR Synch Dram PC3200 (400-MHz) Non ECC (2 x 256)	X	X	X
	640-MB DDR Synch DRAM PC2700 (333-Mhz) Non ECC (128 X 512)	X	X	X
	768 MB DDR Synch DRAM PC2700 (333-Mhz) Non ECC (256 X 512)	X	X	X
	1-GB DDR Synch Dram PC3200 (333-MHz) Non ECC (1X 1G)	X	X	X
	2-GB DDR Synch Dram PC3200 (333-MHz) Non ECC (2 x 1GB)	X	X	X
	4-GB DDR Synch Dram PC3200 (333-MHz) Non ECC (4 x 1GB)	X	X	X
	NOTE: for best performance, memory speeds and sizes should not be mixed. See memory section for more information			
Removable Storage	Optional 1.44-MB Diskette Drive		X	X
	64MB USB Disk-on-Key	X	X	X
	48X CD-ROM Drive		X	X
	48X/24X/48X CD-RW Drive		X	X
	16X/40X DVD-ROM with +R Read		X	X
	48X/24X/48X/16X Combo CD-RW/DVD-ROM Drive		X	X
	4X 4.7GB DVD+R/RW Drive		X	X
	Zip 250 for 3.5" drive bay		X	X
	Zip 250 for 5.25" drive bay		X	X
Multibay Storage	Multibay Drive Adapter		X	X
	MultiBay 24X CD-ROM Drive	X	X	X
	MultiBay 8X/24X DVD-ROM Drive with RAM Read	X	X	X
	MultiBay 24X/10X/24X CD-RW Drive	X	X	X
	MultiBay 24X/10X/24X/8X Combo DVD-ROM and CD-RW Drive	X	X	X
	Multibay 1.44MB diskette drive	X		
	*NOTE: Multibay Drive Adaptor is standard in Ultra-slim Desktop, optional on Convertible Minitower and Small Form Factor via MultiBay Drive Adapter.			

Standard Features - Custom Components

Keyboard - One of the following	PS/2 Easy Access Keyboard	X*	X	X
	USB Easy Access Keyboard	X	X	X
	USB Wireless Keyboard	X	X	X
Mouse - One of the following	PS/2 2-Button Scroll Mouse	X*	X	X
	USB 2-Button Optical Mouse	X	X	X
	USB 2-Button Scroll Mouse	X	X	X
	Wireless Optical Mouse	X	X	X
	* NOTE: Requires optional USB/PS2 legacy adapter.			
Modem	Lucent V.90 controllerless 56K Win PCI Fax/Modem	X	X	X
Audio	Integrated Intel Audio with Premier Internal Speaker	X	X	X
NIC	Integrated Broadcom NetXtreme Gigabit ethernet for HP	X	X	X
	Intel Pro 1000 MT NIC	X	X	X
	Wireless 802.11b PCI	X	X	X
Miscellaneous	Legacy PCI card (1 serial port, 1 parallel port)	X		
	Legacy cable USB to PS/2 (for keyboard and mouse support)	X	X	X
	IEEE 1394 Firewire PCI (firewire 400)	X		
	PCI extender card (adds 2 PCI)			X
	2nd serial port option		X	X
	Tower stand (ships standard with USDT & SFF)	X	X	
Graphics	Intel Extreme Graphics 2 (integrated with Intel 865G chipset)	X	X	X
	DVI ADD card full height			X
	DVI ADD card low profile		X	
	DVI ADD card	X		
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) full height			X
	NVIDIA Quadro4 100NVS AGP (64MB, dual VGA) low profile		X	
	NVIDIA Quadro4 100NVS PCI (64MB, dual DVI)	X		
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, DVI, S-video) full height			X
	NVIDIA GeForce4 MX440/8 (64MB, 8XAGP, DVI, S-video) low profile		X	
Security	Solenoid/Hood Sensor		X	X
	Port Control Bracket	X	X	X
	TCPA module	X	X	X

Standard Features - Custom Components

Operating System – One of the following	Microsoft Windows XP Professional with service pack 1	X	X	X
	Microsoft Windows XP Home with service pack 1	X	X	X
	Microsoft Windows 2000 with service pack 3	X	X	X
	Mandrake 9.1 Linux - Light	X	X	X
	NOTE: Microsoft Windows NT 4.0 are not available on system, but Softpaq drivers are downloadable from hp.com			
Software	Norton AntiVirus 2003	X	X	X
	Microsoft Office XP Professional	X	X	X
	Microsoft Office XP Small Business Edition	X	X	X
	For information about Intelligent Manageability visit: http://h18019.www1.hp.com/im/swdeploy/dt_nb.html	X	X	X

Standard Features

	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Processor	Intel Celeron and Pentium 4		
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB		
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed		
Chipset	Intel 865G		
Memory Expansion Slots	2 DIMMs	4 DIMMs	4 DIMMs
Memory Type Supported	DDR (ECC not supported by Chipset)		
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC		
Maximum Memory	2-GB	4-GB	4-GB
Network controller	Integrated Broadcom NetXtreme Gigabit ethernet for HP		
Graphics	Integrated Intel Extreme Graphics 2		
Audio	Integrated digital audio with S/PDif 6-channel pass-through, stereo microphone, active noise cancellation and Yamaha XG Lite Softsynth support		
PCI	1 full-height, 5.28 in (13.4 cm) length PCI card	2 full-height, 6.87 in (17.45 cm) length PCI cards	3 full-height slots on PCA (2 additional slots available via optional PCI Extender Card)
AGP	None	1 low-profile AGP 8X, 1.5V	1 AGP 8X, 1.5V
Bays	Total Bays = 2	Total Bays = 3	Total Bays = 6
Internal Bays	(1) 3.5 inch ATA Hard Drive	(1) 3.5 inch ATA Hard Drive	(2) 3.5 inch ATA Hard Drive
External Bays	(1) MultiBay	(1) 5.25 inch half-height (1) 3.5 inch third height	(3) 5.25 inch half-height (1) 3.5 inch third height
Parallel Port	Optional via PCI card	1	1
Serial Port	Optional via PCI card	1	1 – with 2nd available as option
Front I/O	Front Headphone, Microphone, and 2 USB 2.0 Standard		
Rear I/O	4 USB, 1 VGA, Audio In, Audio Out, 1 RJ-45, Audio In, Audio Out / Headphone, Mic In	4 USB, 1 standard serial port, 1 optional serial port, 1 parallel port, PS/2 keyboard and mouse, 1 RJ-45, 1 VGA, Audio In, Audio Out / Headphone, Mic In	4 USB, 1 standard serial port, 1 optional serial port, 1 parallel port, PS/2 keyboard and mouse, 1 RJ-45, 1 VGA, Audio In, Audio Out / Headphone, Mic In
USB Keyboard	1	Optional	Optional
USB Mouse	1	Optional	Optional
PS/2 Keyboard	Optional via USB adapter	1	1
PS/2 Mouse	Optional via USB adapter	1	1
VGA Adapter	1		
Chassis Dimensions (H x W x D)	2.75 x 12.4 x 13.07 in (7 x 31.5 x 33.2 cm)	3.95 x 13.3 x 15.1 in (10 x 33.8 x 38.3 cm)	17.65 x 6.6 x 17.8 in (44.8 x 16.7 x 45.2 cm)
System Weight	15.4 lbs (6.99 kg)	22.2 lbs (10.07 kg)	32.5 lbs (14.74 kg)
System Volume	7.3 liters	13 liters	33.8 liters
Shipping Weight	19 lbs (8.62 kg)	29 lbs (13.15 kg)	43 lbs (19.5 kg)
Weight Supported	77 lbs (34.92 kg)	77 lbs (34.92 kg)	77 lbs (34.92 kg)
Power Supply	150W Power Supply – PFC (115v / 230v line switch)	185W Power Supply – PFC (115v / 230v line switch)	240W ATX Power Supply – PFC with in 240V mode (115v/230V line switch)
Hard Drive Interfaces Supported	2 ULTRA ATA/100 interfaces		
Hard Drive Controller (PCI) Supported	ULTRA ATA 100/66/33		
Serial - ATA	1 port	2 ports	2 ports
Preinstalled Software			
Windows NT 4.X	— (drivers available on web - Softpaqs Only)	— (drivers available on web - Softpaqs Only)	— (drivers available on web - Softpaqs Only)
Windows 2000 SP3	X	X	X
Windows XP Pro SP1	X	X	X
Windows XP Home SP1	X	X	X
Computer Setup Utility	X	X	X
Diagnostics for Windows	X	X	X
Microsoft Internet Explorer	X	X	X

After-Market Options

		USDT	SFF	CMT	Part Number
Communications	**Modems**				
	v.90 56k PCI win modem	X	X	X	239137-001
	USB 56k fax modem	X	X	X	228141-001
	NICs				
	Broadcom NetXtreme Gigabit Ethernet for HP (PCI)	X	X	X	DC194A
	Intel Pro/1000 MT	X	X	X	DC193A
	Wireless WL220 802.11b PCI (full height and low profile brackets)	X	X	X	DC756B#ABA
	HP WL215 USB (802.11b) WiFi wireless LAN	X	X	X	191810-B22
Graphics	**2D Graphics**				
	NVIDIA GeForce4 MX440/8 64-MB DDR 8XAGP DVI &		X	X	DC663A
	S-video (includes low profile bracket for Small Form Factor)		X	X	DC663A
	Intel DVI AGP Digital Display (ADD) Card				
	2D Multi-Display Graphics				
	NVIDIA Quadro4 100NVS 64-MB AGP VGA dualhead		X	X	DC665A
	NVIDIA Quadro4 100NVS 64-MB PCI VGA, DVI-I, S-video	X			DC664A
	Cables				
	NVIDIA Quadro4 100NVS DVI connector cables (for use with DC665A)		X	X	DC157A
Hard Drives	**Ultra ATA/100 SMART Hard Drives**				
	160-GB 7200 rpm Ultra ATA/100 Hard Drive	X	X	X	DC189A
	80-GB 7200 rpm Ultra ATA/100 Hard Drive	X	X	X	250021-B21
	40-GB 7200 rpm Ultra ATA/100 Hard Drive	X	X	X	201066-B21
Input/Output Devices	**Keyboards**				
	HP PS/2 Easy Access Keyboard (Carbonite/Silver)	X*	X	X	DC167B#ABA
	HP Wireless Easy Access Keyboard with Wireless/Optical Mouse	X	X	X	DC170B#ABA
	HP USB Easy Access Smartcard Keyboard (Carbonite/Silver)	X	X	X	DC169B#ABA
	HP USB Easy Access Keyboard (Carbonite/Silver)	X	X	X	DC168B#ABA
	Mice				
	HP PS/2 2-Button Scroll Mouse (Carbonite)	X*	X	X	DD440B
	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	X	X	X	DC172B
	* NOTE: requires optional USB/PS2 legacy adapter				
	Other				
	PCI to PCMCIA Universal adapter for 3.5" bay		X	X	DC680B
	Parallel/Serial connector legacy PCI adapter	X			DC195A
	USB to PS/2 Mouse/Keyboard legacy adapter	X			DC681B
	IEEE1394 Firewire PCI card	X	X	X	DE471A

After-Market Options

Memory (DIMMs)	**266-MHz (PC2100) DDR DIMMs Non-ECC**				
	1-GB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC166A
	512-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC165A
	256-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC164A
	128-MB DDR Synch Dram PC2100 (266-MHz) Non-ECC	X	X	X	DC163A
	333-MHz (PC2700) DDR DIMMs Non-ECC				
	128MB PC2700 (DDR 333MHz) DIMM	X	X	X	DC338A
	512-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC340A
	256-MB DDR Synch Dram PC2700 (333-MHz) Non-ECC	X	X	X	DC339A
	400-MHz (PC3200) DDR DIMMs Non-ECC				
	128MB PC3200 (DDR 400MHz) DIMM	X	X	X	DE465A
	512-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE467A
	256-MB DDR Synch Dram PC3200 (400-MHz) Non-ECC	X	X	X	DE466A
Monitors	**TFTs**				
	HP TFT L2025 Monitor (20.1-inch)	X	X	X	P4831D
	HP TFT L1825 Monitor (18.1-inch	X	X	X	P9021A
	Compaq TFT1720 Monitor (17-inch)	X	X	X	D5064D
	CRTs				
	Compaq P1130 CRT Monitor (21-inch)	X	X	X	
	Compaq P930 CRT Monitor (19-inch)	X	X	X	
	Compaq S9500 CRT Monitor (19-inch)	X	X	X	261615-003
	Compaq S7500 CRT Monitor (17-inch)	X	X	X	P9008A
	Compaq S5500 CRT Monitor (15-inch)	X	X	X	261602-001
Multimedia	PC Comm station (no keyboard or mouse)	X	X	X	304251-008
	PC Comm station pro (with wireless keyboard and optical mouse)	X	X	X	302002-008
	JBL Platinum Series Speakers	X	X	X	DE893B#ABA
Optical Drives	**DVD-ROM Drive**				
	16X/40X DVD-ROM w/ +R read		X	X	DC151B
	CD-ROM Drive				
	48X Max CD-ROM Drive		X	X	DC143B
	DVD+R/+RW Drive				
	4X DVD+R/+RW Drive		X	X	DC517B
	CD-RW Drive				
	48X/24X/48X CD-RW Drive		X	X	DC196B
	Combo Drive				
	48X Combo DVD-ROM/CD-RW Drive		X	X	DC197B
Removable Storage	**Diskette Drives and Media**				
	ZIP 250 Drive		X	X	DC140B
	128-MB USB Disk-on-Key	X	X	X	DC190B

After-Market Options

MultiBay Drive Storage	MultiBay Drive Adapter		X	X	DC149B
	MultiBay 24X CD-ROM Drive	X	X	X	DC513B
	MultiBay 24X CD-RW Drive	X	X	X	DC514B
	MultiBay 24X Combo DVD-ROM/CD-RW Drive	X	X	X	DC148B
	MultiBay 8X DVD-ROM Drive (reads all formats)	X	X	X	DC515B
	NOTE: In order to use Multibay devices on SFF & CMT, the Multibay Drive adapter is required.				
Security	Rear Port Controller Cover	X			DE900A
	Rear Port Controller Cover		X		DE897A
	Rear Port Controller Cover			X	DE896A
	Solenoid Hood Lock		X		DE472A
	Solenoid Hood Lock			X	DE618A
	Wall Mount/Security Sleeve	X			DK413A
	Wall Mount/Security Sleeve		X		DK412A
Brackets/Stands	Chassis clamp lock (no cable)			X	DE817A
	Chassis clamp lock (with 6 foot cable)			X	DE818A
	Tower Stand		X		DE870A
	5.25" Blank Bezel (50 pack)		X		DC177B

865G chipset

DDR SYNCH DRAM Non-ECC Memory

It is not necessary to add memory in pairs. Memory upgrades are accomplished by adding single or multiple DIMMs of the same or varied sizes. This chart does not represent all possible memory configurations. The Intel 865G chipset supports non-ECC 266MHz (PC2100), 333MHz (PC2700) and 400MHz (PC3200) DDR memory.

For best performance, add in pairs, add in same channel, and do not mix speeds. For dual-channel performance, DIMMs must be same size, same DRAM technology, same DRAM bus width, and either all single-sided or double-sided DIMMs. Brand and timing specs are not an issue. If speeds are mixed, default will default to the slowest DIMM.

Maximum Memory (Small Form Factor and Convertible Minitower)

Supports up to 4-GB of DDR SYNCH DRAM.

Possible Memory Configurations (Small Form Factor and Convertible Minitower)

not all memory configurations possible are represented below

DIMM Size	Slot			
	Channel A		Channel B	
	1	2	3	4
128-MB	128-MB			
256-MB	128-MB		128-MB	
512-MB	512-MB			
512-MB	256-MB		256-MB	
1-GB	1-GB			
1-GB	512-MB		512-MB	
2-GB	1-GB		1-GB	
2-GB	512-MB	512-MB	512-MB	512-MB
4-GB Maximum	1-GB	1-GB	1-GB	1-GB

Maximum Memory (Ultraslim Desktop)

Supports up to 2-GB of DDR SYNCH DRAM.

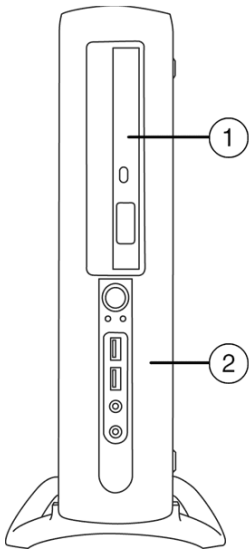
Possible Memory Configurations (Ultraslim Desktop)

not all memory configurations possible are represented below

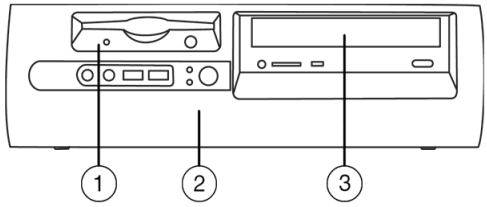
DIMM Size	Slot	
	1	2
128-MB	128-MB	
256-MB	128-MB	128-MB
512-MB	512-MB	
512-MB	256-MB	256-MB
1-GB	1-GB	
1-GB	512-MB	512-MB
2-GB Maximum	1-GB	1-GB

Storage

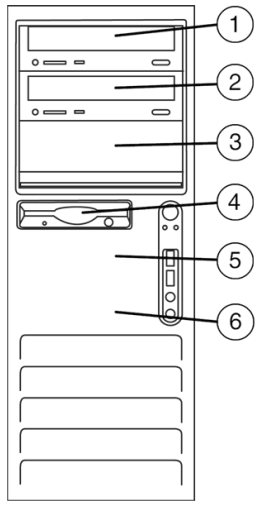
Ultra-slim Desktop



Small Form Factor



Convertible Minitower



	Quantity Supported	Position Supported	Controller
Ultra-slim Desktop			
Hot-swappable MultiBay Drive	1	1	IDE
3.5" SMART III Ultra ATA Hard Drives	1	2	IDE
Small Form Factor			
Diskette Drives	1	1	Diskette
Storage Drive Bay	1	3	IDE
3.5" SMART III Ultra ATA Hard Drives	2	1, 2	IDE
MultiBay Drive (optional, with adapter)	1	3	IDE
Convertible Minitower			
Diskette Drives	1	4	Diskette
Tape Drives	2	1, 2, 3*	IDE
Storage Drive Bay	2	1, 2, 3*	IDE
3.5" SMART III Ultra ATA Hard Drives	2	4, 5, 6	IDE
MultiBay Drive (optional, with adapter)	2	1, 2	IDE

* For CMT, not all storage devices will fit in bay 3 – restricted length

Base Unit Contents	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Processor	Intel Pentium 4 Socket N – 478 (low power only)	Intel Pentium 4 Socket N – 478	Intel Pentium 4 Socket N - 478
CPU Bus Speed Supported	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB	800-MHz, 533-MHz or 400-MHz FSB
Coprocessor	Integrated	Integrated	Integrated
CPU Package	mPGA 478	mPGA 478	mPGA 478
Standard L2 Cache – Pentium 4	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed	512-KB ECC depending on processor speed
L2 Cache Architecture / Speed – Pentium 4	Full core clock speed	Full core clock speed	Full core clock speed
Cache Upgradeable – Pentium 4 and Celeron	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor	Not upgradeable – Integrated into Processor
System board with Intel 865G Chipset with Integrated Intel 8X AGP	X	X	X
Cables	ATA Cable	ATA Cable	ATA Cable
Optical Media	Multibay		
Quick Setup Poster	X	X	X
Product Documentation on CD	X	X	X
Operating System CD	X	X	X
Restore CD	X	X	X
Power Cord	X	X	X
Keyboard	X (USB)	X (PS/2)	X (PS/2)
Mouse	X (USB)	X (PS/2)	X (PS/2)
Memory Expansion Slots	2 DIMMs	4 DIMMs	4 DIMMs
Memory Type Supported	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)	DDR (ECC not supported by Chipset)
Memory Speed Supported	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC	DDR Synch DRAM PC2100 (266MHz), PC2700 (333-MHz) or DDR Synch DRAM PC3200 (400MHz) Non-ECC
Maximum Memory	2-GB	4-GB	4-GB
Memory Parity	Not Needed for non-ECC	Not Needed for non-ECC	Not Needed for non-ECC
ECC Memory	Not Supported by chipset	Not Supported by chipset	Not Supported by chipset
Serial Presence Detect Support	Supported	Supported	Supported
PCI	1 full-height, 5.28 in (13.4 cm) length PCI card	2 full-height, 6.87 in (17.45 cm) length PCI cards	3 full-height slots on PCA (2 additional slots available via optional PCI Extender Card)
AGP	None	1 low-profile AGP 8X, 1.5V	1 AGP 8X, 1.5V
Bays	Total Bays = 2	Total Bays = 3	Total Bays = 6
Internal	(1) 3.5 inch ATA Hard Drive	(1) 3.5 inch ATA Hard Drive	(2) 3.5 inch ATA Hard Drive
		(1) 5.25 inch half-height	(3) 5.25 inch half-height
External	(1) MultiBay	(1) 3.5 inch third height	(1) 3.5 inch third height
Wireless Support	PCI card or external USB	PCI card or external USB	PCI card or external USB
Parallel Port	Optional via PCI card	1	1
Serial Port	Optional via PCI card	1 – with 2nd available as option	1 – with 2nd available as option
USB Keyboard	1	Optional	Optional
USB Mouse	1	Optional	Optional
PS/2 Keyboard	Optional via USB adapter	1	1
PS/2 Mouse	Optional via USB adapter	1	1
VGA Adapter	1	1	1
Chassis Dimensions (H x W x D)	2.75 x 12.4 x 13.07 in (7 x 31.5 x 33.2 cm)	3.95 x 13.3 x 15.1 in (10 x 33.8 x 38.3 cm)	17.65 x 6.6 x 17.8 in (44.8 x 16.7 x 45.2 cm)
System Weight	15.4 lb (6.99 kg)	22.2 lb (10.07 kg)	32.5 lb (14.74 kg)
System Volume	7.3 liters	13 liters	33.8 liters
Shipping weight	19 lb (8.62 kg)	29 lb (13.15 kg)	43 lb (19.5)
Monitor weight supported	77 lb (35 kg)	77 lb (35 kg)	77 lb (35 kg)
Hard Drive Interfaces Supported	2 ULTRA ATA/100 interfaces	2 ULTRA ATA/100 interfaces	2 ULTRA ATA/100 interfaces
Hard Drive Controller (PCI) Supported	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33	ULTRA ATA 100/66/33

Serial-ATA	1 port	2 ports	2 ports

System Board	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Architecture	P4 / PCI / AGP 8X	P4 / PCI / AGP 8X	P4 / PCI / AGP 8X
Chipset	Intel 865G Chipset	Intel 865G Chipset	Intel 865G Chipset
I/O Controller	SMSC LPC47B387	SMSC LPC47B387	SMSC LPC47B387
System Board Form Factor	custom	UATX	UATX
Processor Socket - 478 Pin ZIF	X	X	X
DIMM Connectors (2.5V)	2	4	4
AGP Connector (1.5V)	—	1 (8X)	1 (8X)
Integrated AGP Graphics	Intel	Intel	Intel
PCI Connectors	1	2	3; 5 with optional extender
Flash ROM	X	X	X
AC97 Integrated Audio	X	X	X
CD ROM IN (Audio)	X	X	X
AUX IN (Audio)	X	X	X
Clear CMOS Button	X	X	X
CPU Fan Header	X	X	X
Chassis Fan Header	X	X	X
Chassis Speaker Header	X	X	X
CMOS Battery Holder - Lithium	X	X	X
Hood Lock Header	X	X	X
Hood Sensor Header	X	X	X
Multibay Header	X	X	X
Integrated Broadcom NetXtreme Gigabit ethernet for HP	X	X	X
Wake-On-Lan®	X	X	X
ASF 1.0 (Alert Standard Format)	X	X	X
Power Supply Header	X	X	X
Power Switch, Power LED & Hard Drive LED Header	X	X	X
Password Clear Header	X	X	X
Riser Connector	—	X	—
SCSI LED Header	X	X	X
PCI extender that connects to System Board	—	—	X

Chassis	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Color	Carbonite/Silver	Carbonite/Silver	Carbonite/Silver
System Board Form Factors Supported	Custom USDT	Standard m ATX	Standard m ATX
Cooling Solutions Supported	X	X	X
Power Supply Fan (Variable Speed)	X	X	X
Processor Fan-Heatsink (Variable Speed)	X	X	X
Chassis Fan	X	—	X
Slots Supported	1 full-height, 5.28 in (13.4 cm) length PCI card	2 full-height, 6.87 in (17.45 cm) length PCI cards	5 Full-height, Full-length PCI slots
AGP Slot	—	1 Low Profile AGP	1 AGP
Front I/O	Front Headphone, Microphone, and 2 USB 2.0 Standard	Front Headphone, Microphone, and 2 USB 2.0 Standard	Front Headphone, Microphone, and 2 USB 2.0 Standard
Rear I/O	4 USB, 1 VGA, Audio In, Audio Out, 1 RJ-45, Audio In, Audio Out / Headphone	4 USB, 1 standard serial port, 1 optional serial port, 1 parallel port, PS/2 keyboard and mouse, 1 RJ-45, 1 VGA, Audio In, Audio Out / Headphone, stereo Microphone	4 USB, 1 standard serial port, 1 optional serial port, 1 parallel port, PS/2 keyboard and mouse, 1 RJ-45, 1 VGA, Audio In, Audio Out / Headphone, stereo Microphone
Internal Speaker	—	—	—
Power Supply	150W Power Supply – PFC (115v / 230v line switch)	185W Power Supply – PFC (115v / 230v line switch)	240W ATX Power Supply – PFC with in 240V mode (115v/230V line switch)
Security Locks Supported	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)	Kensington Cable Lock Provision (Lock not included) Hood Cover Security Loop (Lock not included) Smart Cover Lock (option) – Locking solenoid controlled via F10 setup (failsafe key)
Security Loop hole diameter	0.212 inches	0.236 inches	0.220 inches

Interfaces	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
I/O Chip	SMSC LPC47B387	SMSC LPC47B387	SMSC LPC47B387
Serial Port	Optional via PCI card	1 standard, 2nd via option	1 standard, 2nd via option
Parallel Port	Optional via PCI card	1	1
PS/2	Optional via USB adapter	1 Keyboard and 1 Mouse	1 Keyboard and 1 Mouse
USB (2.0)	6 ports (4 rear/2 front)	6 ports (4 rear/2 front)	6 ports (4 rear/2 front)
RJ-45 10/100/1000 Network	X	X	X
Keyboard	X (USB standard, PS/2 available via optional USB adapter)	X (PS/2)	X (PS/2)
Mouse	X (USB standard, PS/2 available via optional USB adapter)	X (PS/2)	X (PS/2)
Multibay	X	X CTO Option - Multibay Drive Adapter	X CTO Option - Multibay Drive Adapter
Video (VGA)	X	X	X
Audio	X	X	X

Power Supply	Ultra-Slim Desktop	Small Form Factor	Convertible Minitower
Power Supply	Custom Power Supply – PFC With in 230V (115v/230V line switch)	Custom Power Supply – PFC With in 230V (115v/230V line switch)	ATX Power Supply – PFC With in 230V (115v/230V line switch)
Full Ranging Input (No Line Select Switch)	—	—	—
Active Power Factor Correction (APFC) (Input Current is nearly 1/2 a non-APFC PS)	—	—	—
Passive Power Factor Correction (PFC)	X	X	X
Operating Voltage Range	90 – 132 / 180 – 264 VAC	90 – 132 / 180 – 264 VAC	90 – 132 / 180 – 264 VAC
Rated Voltage Range	100 – 127 / 200-240 VAC	100 – 127 / 200-240 VAC	100 – 127 / 200-240 VAC
Rated Line Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Operating Line Frequency Range	47 – 63 Hz	47 – 63 Hz	47 – 63 Hz
Rated Input Current	5A / 2.5A	5A / 2.5A	6A / 3A
Maximum Rated Power	150W	185W	240W
Heat Dissipation	Typical 256 btu/hr (65 kg-cal/hr)	Typical 256 btu/hr (65 kg-cal/hr)	Typical 256 btu/hr (65 kg-cal/hr)
	Maximum 788 btu/hr (199 kg-cal/hr)	Maximum 971 btu/hr (245 kg-cal/hr	Maximum 1260 btu/hr (318 kg-cal/hr
Power Supply Fan	None; airflow is ducted from processor blower	60mm variable speed	92mm variable speed
Energy Star Compliant	X	X	X
Blue Angel Compliant (<5w in S5--Power Off)	X	X	X
FEMP Standby Power Compliant	X	X	X
(<2W in S5 – Power Off)			
Power Consumption in ES Mode - Suspend to RAM (S3) (Instantly Available PC)	2.5W to 3W	2.5W to 3W	2.5W to 3W
Processor/Cache Memory Power -Down (S3)	< 3W	< 3W	< 3W
Environmental and Mechanical Engineering Support Center	http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm		

ROM Features	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Instantly Available PC (Suspend to RAM - S3)	Allows for very low power consumption with quick resume time	X	X	X
ROM Based F10 Setup	Review and customize BIOS settings	X	X	X
Remote System Installation via F12 (PXE) (Remote Boot from Server)	Allows a new or existing system to boot over the network and download software, including the operating system	X	X	X
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS	X	X	X
CMOS Archive and CMOS Restore	Holding down the power button restores the last known good BIOS settings (from previous restart) if the system gets into a locked state after configuration changes are made	X	X	X
Auto Setup when New Hardware Installed	System automatically detects addition of new hardware	X	X	X
Serial, Parallel, USB, Audio, Network, Enable/Disable Port Control	Enable or disables serial, parallel, USB, audio, and network ports	X	X	X
Removable Media Write/Boot Control	Prevents ability to boot from removable media on supported devices (and can disable writes to media on supporting devices)	X	X	X
Network Server Mode	Allows for secured keyboard-less operation	X	X	X
Power-On Password	Prevents an unauthorized person from booting up the computer	X	X	X
Setup Password	Prevents an unauthorized person from changing the system configuration	X	X	X
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. SSM and Repset.exe utility can then replicate these settings on machines being deployed without entering ROM-based F10 setup	X	X	X
Memory Change Alert (Requires Insight Management Agent)	Alerts management console if memory is removed or changed	X	X	X
Thermal Protection	Protects system components from thermal damage. If excessive temperatures are encountered the computer automatically shuts down without warning before hardware component damage occurs.	X	X	X
Thermal Alert (Requires Insight Management Agent)	Monitors the temperature state within the chassis. Three modes: • NORMAL – normal temperature ranges • ALERTED - excessive temperatures are detected. Raises a flag so action can be taken to avoid shutdown or provide for a smoother system shutdown • SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs	X	X	X
Cover Removal Alert (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes: • DISABLED - user/network administrator does not want to be made aware of the computer hood removal • NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot	—	Optional	Optional
Master Boot Record Security	Detects changes to MBR and optional restoration, useful in protecting from viruses	X	X	X
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	X	X	X
Remote Wakeup	• System administrators can power on, restart, and power off a client computer from a remote location.	X	X	X

	• Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.			
ACPI (Advanced Configuration and Power Management Interface)	• Allows the system to wake from a low power mode • Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system	X	X	X
Keyboard-less Operation	The system can be operated without a keyboard	X	X	X
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	X	X	X
Environmental and Mechanical Engineering Support Center (EMESC) - Intranet Web Site only	http://env-webserver.ccm.cpqcorp.net/EMESC/default.htm			

Software	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Preinstalled Software				
Windows 3.1		—	—	—
Windows 95		—	—	—
Windows 98		—	—	—
Windows NT 4.X (drivers available on web - Softpaqs only)		—	—	—
Windows 2000 SP3		X	X	X
Windows XP Pro SP1		X	X	X
Windows XP Home SP1		X	X	X
Computer Setup Utility		X	X	X
Diagnostics for Windows		X	X	X
Microsoft Internet Explorer		X	X	X

Pre-loaded Software	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Altiris Agents (Aclient, Nsclient)		X	X	X
Insight Management Agent		X	X	X
Local Diskette Boot		X	X	X
Network Boot		X	X	X
Disk-on-Key Boot		X	X	X

Initial Configuration and Deployment	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
HP/Compaq Client Manager (free)	A FREE solution that provides asset tracking, alerting, diagnostics, and SoftPaq distribution for Compaq business desktops, notebooks, and workstations. Compaq Client Manager "plugs" into the Altiris eXpress infrastructure to provide value-add Compaq specific information that can be leveraged by all Altiris eXpress solutions	X	X	X
Altiris eXpress Solutions (30-day trial version)	A suite of solutions that focus on business needs in four areas, saving time and freeing resources to address other crucial issues: • Deployment & Migration • Software & Operations Management • Inventory & Asset Management • Help Desk & Problem Resolution	X	X	X
PC Transplant Pro (30-day trial version)	Makes transferring the files and settings that make your PC unique quick and intuitive process	X	X	X
System Software Manager (free)	Detects and updates BIOS, device drivers, and management agent versions on your networked PCs	X	X	X
Replicated Setup	Saves BIOS settings to diskette or USB disk-on-key in human readable file. Repset.exe utility can then replicate these settings on machines being deployed without entering ROM-based F10 setup	X	X	X
Insight Manager	-----	X	X	X
Support Software CD	-----	X	X	X
Software Restore CD	Restores computer to its original factory shipping image	X	X	X
Asset Tag	• Repository for storing company-specific property asset numbers for easy tracking • Initially set equal to the system serial number • Stored in a protected section of non-volatile memory that can be accessed and modified with the F10 Setup program	X	X	X
DIMM Serial Presence Detect	Detects whether or not memory DIMMs are present and their type	X	X	X
Hard drive serial number, model, and manufacturer	Hard drive manufacturer, model, and serial number is stored in the hard drive firmware and reported in ROM-based F10 setup	X	X	X
Monitor serial number, model & manufacturer	-----	X	X	X
System serial number, model, & manufacturer	System serial number, model, & manufacturer stored in a non-volatile memory and can be retrieved with management SW or viewed in ROM-based F10 setup	X	X	X
ROM revision levels	• Identifies system ROM revision levels and reports in ROM-based F10 setup • Version is stored in an industry standard memory location (SMBIOS) so that management SW applications can use and report this information	X	X	X
System board revision level	• Allows management SW to read the revision level of the system board • Revision level is digitally encoded into the hardware and cannot be modified	X	X	X
Memory Change Alert	Alerts management console if memory is removed or changed	X	X	X
Ownership Tag	A user-defined string stored in non-volatile memory that is displayed in the BIOS splash screen	X	X	X

Security Features	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Smart Cover Lock	Remote operated system lock	—	Optional	Optional
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the computer. Can be set to one-of-three modes: • DISABLED -user/network administrator does not want to be made aware of the computer hood removal • NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot	—	Optional	Optional
Mechanical Hood Security Provision	Security Loop	X	X	X
Kensington Lock Support	Kensington lock slot on the chassis	X	X	X
Cable Lock Provision	Physically secure computer hardware from theft	X	X	X
Serial, Parallel, USB Enable/Disable	Enable or disable serial, parallel or USB ports and hide them form the operating system	X	X	X
Port Control	Attaches to back of chassis covering external ports and thereby preventing unauthorized access; also aids in cable management	X	X	X
Removable Media Write / Boot Control	Prevents the computer from being booted from removable media on supported devices (and can disable writes to media)	X	X	X
Power-On Password	Prevents an unauthorized person from booting up the computer	X	X	X
Setup Password	Prevents an unauthorized person from changing the system configuration	X	X	X
Smartcard Reader	Prevents system access to the operating system unless the user has the appropriate Smartcard	X	X	X
Fingerprint Reader	Restricts system access to the operating system based on fingerprint	X	X	X

Fault Notification and Recovery	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
SMART Hard Drives, Fault Notification, & Prefailure Warranty	• Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted • Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count • By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	X	X	X
Proactive Backup	• Initiates an automatic backup of the computers SMART hard (to a local tape device for example) when an imminent failure is predicted • Prevents data loss and end-user down time due to a failing hard drive	X	X	X
Surge Tolerant Full Ranging Power Supply	Withstands power surges up to 2000V	X	X	X
Thermal Sensor	Monitors the temperature within the chassis • NORMAL –normal temperature ranges • ALERTED - excessive temperatures are detected. Raises a flag so that appropriate action can be taken to avoid shutdown or provide for a smoother system shutdown • SHUTDOWN – excessive temperatures are encountered. Automatically shuts down the computer without warning before hardware component damage occurs	X	X	X
Ultra ATA Integrity Monitoring (CRC Checking)	Provides data transfer verification and proactive notification of hard drive data transmission problems with recommendations for enhancing system performance. It detects all the following errors types: • single bit errors • double bit errors • an odd number of errors • error bursts up to 32-bits long	X	X	X

System Software Updating	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Product Change Notification	• Program to proactively communicate Product Change Notifications (PCNs) and Customer Advisories by email to customers, based on a user-defined profile. • PCNs provide advance notification of hardware and software changes to be implemented in the factory providing time to plan for transition. • Customer Advisories provide concise, effective problem resolution, greatly reducing the need to call technical support	X	X	X
Active Update	• Advanced web-based application that provides proactive notification and automatic download of software updates for most Compaq commercial products • Updates may be deployed using Compaq or third-party deployment tools • Software subscription filters automatically identify and download only relevant content based on the user-defined subscription information	X	X	X
Remote ROM Flash	Provides secure, fail-safe ROM image management from a central network console	X	X	X
Remote Wakeup / Remote Shutdown	• System administrators can power on, restart, and power off a client computer from a remote location. • Enables cost-effective power consumption when the administrator needs to distribute software, perform security management, or update the ROM.	X	X	X
ROM Based Setup (F10) and Start-up Diagnostics	-----	X	X	X
Support Software CD & WWW	-----	X	X	X

Other Features	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
ACPI-Ready Hardware	Advanced Configuration and Power Management Interface (ACPI). • Allows the system to wake from a low power mode. • Controls system power consumption, making it possible to place individual cards and peripherals in a low-power or powered-off state without affecting other elements of the system	X	X	X
SMBIOS	System Management BIOS, previously known as DMI BIOS, for system management information	X	X	X
Wired for Management Support	Intel-driven, industry-wide initiative to make Intel architecture-based PCs, servers and mobile computers more inherently manageable right out of the box and over the network	X	X	X
Dual-State Power Button	Power button acts as either an on/off button and suspend-to-sleep button	X	X	X

Serviceability Features of System	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Dual Color Power LED on Front of Computer (Indicates Normal Operations and Fault Conditions)	-----	X	X	X
Diagnostic LED Explanation Table	Number of 1-second red LED blinks followed by 2-second pause, then repeats: 2-processor thermal protection activated 3-processor not installed 4-power supply failure 5-memory error 6-video error 7-PCA failure (ROM detected failure prior to video) 8-invalid ROM, bootblock recover mode	X	X	X
System/Emergency ROM Flash Recovery with Video	Recovers corrupted system BIOS.	X	X	X
Compaq Diagnostic for Windows Software	-----	X	X	X
Compaq Configuration Record SW	-----	X	X	X
Over-Temp Warning on Screen (Requires IM Agents)	-----	X	X	X
Compaq OS CD (Restore OS CD)	Restores computer to its original factory shipping image	X	X	X
Compaq Restore CD	Restores the computer to its original factory shipping image	X	X	X
Flash ROM	-----	X	X	X
3.3V Aux Power LED on System PCA	-----	X	X	X
Dual Function 5V Aux Power LED (ON) / PS_ON LED (OFF) on System PCA	-----	X	X	X
Diagnostic Power Switch LED on board	-----	X	X	X
Clear Password Jumper	-----	X	X	X
Clear CMOS Button	-----	X	X	X
CMOS Battery Holder for easy Replacement	-----	X	X	X
Processor ZIP Socket for easy Upgrade	-----	X	X	X
DIMM Connectors for easy Upgrade	-----	X	X	X
NIC LEDs (integrated) (Green & Amber)	Used to determine NIC status	X	X	X

Serviceability Features of Chassis	Description	Ultra-slim Desktop	Small Form Factor	Convertible Minitower
Dual Color Power and HD LED - To Indicate Normal Operations and Fault Conditions	-----	X	X	X
ASF 1.0 support (Alert Standard Format)	Industry-standard specification for network alerting in operating system-absent environments	X	X	X
Smart Cover Sensor (Requires Insight Management Agent for network alerts)	Notifies the Network Administrator and end user when the cover has been removed without authorization through an electronic switch residing inside the compute. Can be set to one-of-three modes: • DISABLED - user/network administrator does not want to be made aware of the computer hood removal • NOTIFY USER - notifies user/network administrator that the hood has been removed, but no action required before re-booting the computer • UP PASSWORD – notifies user/network administrator that the hood has been removed and administrator password is required before the computer will continue to boot	—	Optional	Optional
Smart Cover Lock	Remote operated system lock	— cover can be locked with security loop or kensington	X (Option)	X (Option)
Front power switch	-----	X	X	X
Green Pull Tabs, and Quick Release Latches for easy Identification	-----	X	X	X
Color coordinated cables and connectors		X	X	X
System memory can be upgraded without removing the system board or any internal components	Eases memory upgrading	X	X	X
Tool-less Hood Removal	Eases entry to the chassis without use of special tools	X (with captive thumbscrew)	X (single latch)	X (single latch)
Tool-less Hard Drive, CD & Diskette Removal	-----	Hard Drive is tool-less. Multibay Drives are hot-swappable and ejectable.	X	X
Tool-less System Board Removal	No special tools required for system board removal or maintenance	0	X	X
Towerable	Product can be oriented as a tower (in addition to desktop orientation)	X	X	X(Can also Rotate Drives in External Bays)
Universal Tower Stand	Necessary to safely orient as a tower	X(Standard)	X (optional)	— (Not needed - Chassis is easily converted to either desktop or tower)
Drive Self Tests (DPS)	• Drive Protection System • A diagnostic hard drive self test. It scans critical physical components and every sector of the hard drive for physical faults and then reports any faults to the user. Running independently of the operating system, it can be accessed through a Windows-based diagnostics utility or through the computer's setup procedure. It produces an	X	X	X
DPS Access through F10 Setup during Boot		X	X	X

DPS Access through Diagnostics for Windows	evaluation on whether the hard drive is the source of the problem and needs to be replaced. ● The system expands on the Self-Monitoring, Analysis, and Reporting Technology (SMART), a continuously running systems diagnostic that alerts the user to certain types of failures	X	X	X
SMART Technology (Self-Monitoring, Analysis and Reporting Technology)	● Allows hard drives to monitor their own health and to raise flags if imminent failures were predicted ● Predicts failures before they occur. Tracks fault prediction and failure indication parameters such as re-allocated sector count, spin retry count, calibration retry count ● By avoiding actual hard drive failures, SMART hard drives act as "insurance" against unplanned user downtime and potential data loss from hard drive failure	X	X	X
SMART I - Drive Failure Prediction		X	X	X
SMART II - Off-Line Data Collection		X	X	X
SMART III - Off-Line Read Scanning with Defect Reallocation		X	X	X

Service and Support	On-site Warranty and Service Note 1: This three-year, limited warranty and service offering delivers three years of on-site, next business-day Note 2 service for parts and labor and includes free telephone support Note 3 24 x 7. Global coverage Note 2 ensures that any product purchased in one country and transferred to another, non-restricted country will remain fully covered under the original warranty and service offering.
	NOTE 1: Terms and conditions may vary by country. Certain restrictions and exclusions apply.
	NOTE 2: On-site service may be provided pursuant to a service contract between HP and an authorized HP third-party provider, and is not available in certain countries. Global service response times are based on commercially reasonable best effort and may vary by country.
	NOTE 3: Technical telephone support applies only to HP-configured, HP and HP-qualified, third-party hardware and software. Toll-free calling and 24 x 7 support may not be available in some countries.

TechSpecs - Audio

AC97 Integrated ADI 1981B Audio	**Type**	Integrated
	AC '97 Stereo Codec	Yes
	FM Synthesis Support	Yamaha XG Lite
	OPL3 FM Synthesis Support	Yes
	Sound Blaster Compatibility	Yes
	Audio Jacks	Mic-In (20-K ohm Input Impedance) rear stereo and front analog microphone ports available
		Line-In (12-K ohm Input Impedance)
		Line-Out * (less than 800 ohms Output Impedance, expects at least a 10-K ohm load)
		Headphone-Out (2.5 Ohms Output Impedance, expects at least a 32 ohm load)
	NOTE: *Internal Speaker Amplifier is for Internal Speaker only. External Speakers need to be powered externally.	
	Sampling	7 kHz – 48 kHz
	Compression	ADPCM, ESPCM
	Wavetable Syntheses (software)	Yes – GM and FM Midi support. Direct Music and Down Loadable Soundset (4 meg DLS level 1 and 2 support)
	3D Positional Sound	No
	Analog Audio	Number of Channels on Line-Out (mono/stereo): Stereo (Left & Right channels)
		Internal Audio Speaker Power Rating: 3W
		Internal Speaker: Yes
		Internal Tuned Port Speaker: Yes
		Hardware Equalizer for Internal Speaker: Fixed 7 Band ParametricEQ
		External Speaker Jack (Headphones/Line-Out): Yes

Integrated Broadcom NetXtreme Gigabit Ethernet NIC	Connector	RJ-45
	Controller	Broadcom 5782 PCI LAN Controller
	Memory	Integrated 96Kb frame buffer memory
	Data rates supported	10/100/1000 Mbps
	Compliance	IEEE 802.1A, 802.1P, 802.1Q, 802.2, 802.3, 802.3AB and 802.3u compliant, 802.3x flow control
	Bus architecture	PCI 2.2
	Data path width	32-bit, 33/66 MHz bus interface
	Data transfer mode	Bus-master DMA
	Hardware certifications	FCC, B, CE, TUV- cTUVus Mark Canada and United States, TUV- GS Mark for European Union
	Power requirement	1.48 watts @ +3.3V AUX supply with 5V tolerance
	Boot ROM support	Yes
	Network transfer rate	10BASE-T (half-duplex) 10 Mbps
		10BASE-T (full-duplex) 20 Mbps
		100BASE-TX (half-duplex) 100 Mbps
		100BASE-TX (full-duplex) 200 Mbps
		1000BASE-T, 1000 Mbps
	Environmental	Operating temperature 32° to 131° F (0° to 55° C)
		Operating humidity 85% at 131° F (55° C)
	Dimensions	4.7 x 2.0 x 0.08 in (12 x 5 x 1.9 cm)
	Operating system driver support	Microsoft Windows NT 4.0, Microsoft Windows 98, Microsoft 2000, Microsoft XP, Linux 2.2, Linux 2.4
	Management capabilities	ACPI, WOL and DMI 2.0, PXE 2.0, WfM 2.0
	Alerting	ASF 1.0

Integrated Intel Extreme Graphics	**3D/2D Controller**	Support is fully compliant with Microsoft standard API such as Direct Draw, GDI/GDI+ and Direct Show
	VGA Controller	Integrated
	Bus Type	AGP8X (Internal graphics is disabled if external AGP Graphics card is installed)
	RAMDAC	Integrated 350-MHz DAC
	Memory	Graphics memory is shared with system memory. Graphics memory usage can vary from 8 – 64MB depending on the amount of system memory installed and system load. 16MB is pre-allocated for graphics use at system boot time. Additional memory is allocated for graphics using Intel's Dynamic Video Memory Technology (DVMT) to balance the optimum amount of memory between graphics and other system use. With a 128MB system, graphics memory usage will be 8MB -32MB depending on system load. With 256MB or more, graphics memory usage will be 16MB - 64MB depending on system load.
	Controller Clock Speed	200 MHz
	Overlay Planes	Single Overlay support with 5x3 filtering
	Max Color Depth	32-bits/pixel
	Maximum Vertical Refresh Rate	85Hz at up to 1920 x 1440, 75Hz at 2048 x 1536. Varies with mode and configuration. See table below
	Multi-display Support	Support for one CRT via the motherboard's VGA connector. Support for an additional DVI-D display via the optional DVI ADD card. Intel's Dual Display Twin mode allows for displaying the same image on both the displays.
	Operating Systems	Microsoft Windows XP and Windows 2000
	Graphics API Support	Complete Microsoft DirectX® support, including DirectX 8.1; complete OpenGL® 1.3 support. Compatible with DirectX 9.

Resolutions Supported (At various color depths & memory configurations) (**NOTE:** Refresh rates higher than 85Hz may be obtainable in some modes and configurations but are not recommended)

Resolution	Maximum Refresh Rate (Hz) DR266 Single Channel (8/16/32 bits/pixel)	Maximum Refresh Rate (Hz) DDR 266 Dual / DDR 333 Single Channel (8/16/32 bits/pixel)	Maximum Refresh Rate (Hz) DDR 333 Dual Channel (8/16/32 bits/pixel)
640 x 480	85/85/85	85/85/85	85/85/85
800 x 600	85/85/85	85/85/85	85/85/85
1024 x 768	85/85/85	85/85/85	85/85/85
1152 x 864	85/85/85	85/85/85	85/85/85
1280 x 720	85/85/85	85/85/85	85/85/85
1280 x768	85/85/85	85/85/85	85/85/85
1280 x 960	85/85/85	85/85/85	85/85/85
1280 x 1024	85/85/85	85/85/85	85/85/85
1400 x 1050	85/85/85	85/85/85	85/85/85
1600 x 900	85/85/85	85/85/85	85/85/85
1600 x 1200	85/85/85	85/85/85	85/85/85
1856 x 1392	75/75/60	75/75/60	75/75/60
1920 x 1080	85/85/75	85/85/85	85/85/85
1920 x 1200	75/75/60	75/75/75	75/75/75
1920 x 1440	85/85/60	85/85/60	85/85/60
2048 x 1536	75/75/NA	75/75/NA	75/75/60

7200 rpm SMART III Ultra ATA/100 Hard Drives	40-GB	**Capacity**	40,000 MB
		Rotational Speed	7200 rpm
		Interface	Ultra ATA/100
		Height	1 in (25.4 mm)
		Width	3.5 in (88.9 mm)
		Transfer Rate Synchronous (Maximum)	100 MB/s
		Seek Time (typical reads, including settling)	Single Track 0.8 ms
			Average 9 ms
			Full-Stroke 17 ms
		Physical Configuration	Logical Blocks 78,165,360
		Operating Temperature	41° to 131° F (5° to 55° C)
	80-GB	**Capacity**	80,000 MB
		Rotational Speed	7200 rpm
		Interface	Ultra ATA/100
		Height	1 in (25.4 mm)
		Width	3.5 in (88.9 mm)
		Transfer Rate Synchronous (Maximum)	100 MB/s
		Seek Time (typical reads, including settling)	Single Track 0.8 ms
			Average 9 ms
			Full-Stroke 17 ms
		Physical Configuration	Logical Blocks 156,301,488
		Operating Temperature	41° to 131° F (5° to 55° C)
	160-GB	Capacity	160,000 MB
		Rotational Speed	7200 RPM
		Interface	Ultra ATA/100
		Height	1 in (25.4 mm)
		Width	3.5 in (88.9 mm)
		Transfer Rate Synchronous (Maximum)	100 MB/s
		Seek Time (typical reads, including setting)	Single Track 0.8 ms
			Average 9 ms
			Full-Stroke 17 ms
		Physical Configuration	Logical Blocks 320,173,056
		Operating Temperature	41° to 131° F (5° to 55°C)

Easy Access Keyboard (PS/2 or USB)	**Dimensions** (HxWxD)	1.4 x 18.3 x 6.3 in (36 x 465 x160 mm)	
	Weight	Approximately 2 lb (0.9 kg)	
	Electrical	Operating Voltage	+ 5VDC ± 5%
		Power Consumption	50 mA maximum (with 3 LEDs on)
		System Interface	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		PC98	Functionally compliant
	Mechanical	Languages	30+ available
		Keycaps	Low-profile design
		Switch Actuation	55 g nominal peak force with tactile feedback
		Switch Life	20 million keystrokes (using Hasco modified tester)
		Switch Type	Contamination resistant membrane
		Key Leveling Mechanism	For all double wide and greater length keys
		Cable Length	6 ft (1.8 m)
		PC98-99	Mechanically compliant
		Acoustics	50 dBA maximum sound pressure level
	Environmental	Operating Temperature	50° to 122° F (10° to 50° C)
		Non-operating Temperature	- 22° to 140° F (- 30° to 60° C)
		Operating Humidity	10% to 90% (non condensing at ambient)
		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration

2-Button Scroll Mouse (PS/2 or USB)	**Scroll Wheel**	8 mm	
	Maximum Rotation Speed	30 mm/s	
	Switch Type	Light force micro-switch	
	Switch Life	1 million operations	
	Mechanical Life	Minimum 200,000 revolutions	
	Environmental	Operating Temperature	50° to 122° F (10° to 50° C)
		Non-operating Temperature	-22° to 140° F (-30° to 60° C)
		Operating Humidity	10% to 90% (non condensing at ambient)
		Non-operating Humidity	20% to 80% (non condensing at ambient)
		Operating Shock	40 g, 6 surfaces
		Non-operating Shock	80 g, 6 surfaces
		Operating Vibration	2 g peak acceleration
		Non-operating Vibration	4 g peak acceleration
	Electrical	Operating Voltage	+ 5VDC ± 10%
		Power Consumption	15mA
		System Consumption	PS/2 mini-din connector
		ESD	CE level 4, 15 kV air discharge
		EMI-RFI	Conforms to FCC rules for a Class B computing device
		PC98	Functionally compliant
	Mechanical	Resolution	400 ± 20% DPI
		Tracking Speed	10 in/s maximum
		Acceleration	100 in/s
		Switch Actuation	85 g nominal peak force
		Switch Life	1,000,000 operations (using Hasco modified tester)
		Cable Length	2 m
		PC98-99	Mechanically compliant
	Regulatory Approvals	UL, CSA, FCC, CE Mark, TUV, TUV GS, VCCI, BCIQ, C-Tick	

TechSpecs - Optical Storage

48X Max CD-ROM Drive	**Interface**	ATAPI IDE
	Data Buffer	16.6 Mbps
	Data Transfer Rate	Sustained—150 Kbps minimum Variable (CD)—3,000 to 7,200 Kbps (audio)
	Disk Rotation Technology	CAV (Constant Angular Velocity)
	Access Time (ms)	Random: <100 ms Full-stroke seek: <150 ms
	Average Access Time	< 80 ms
	Cache Buffer (standard/maximum)	128 KB
	Disk Formats Read	Multi-session Photo CD, multi-read CD-ROM, CD text, audio CD, CD-I, CD-RW, CD-R, CD-Extra, CD-ROM XA
	Disk Formats Written	None
	Disk Capacity (CD)	650 MB
	Block Size	Mode 1—2,048 bytes Mode 2—2,340/2,336 bytes CD-DA—2,352 bytes CD-XA—2,328 bytes
	Diameter	12 cm; 8 cm
	Thickness	1.2 mm
	Track Pitch	1.6 µm
	Audio Output Level	Line-out—0.7 V @ 47 Kohm Headphone—0.6 V @ 32 ohm
	Startup Time	<7 seconds (typical); < 30 seconds with multi-session
	Operating Conditions	Temperature 41° to 113° F (5° to 45° C)
		Relative Humidity 10% to 80%
	Dimensions (H x W x D, maximum)	1.7 x 5.9 x 8.2 in (4.3 x 15.0 x 20.8 cm)
	Weight	2.6 lbs (1200 g)
	Operating Systems Supported	Microsoft® Windows® NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP.
	MPEG Playback Graphics Solution Support	None

16X/40X DVD-ROM with +R Read Drive	**Height**	5.25-in, half-height	
	Interface Type	ATAPI	
	Dimensions– External, Excluding Bezel (W x H)	5.88 x 1.71 in (149.5 x 43.5 mm)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	1.2 mm	
	Track Pitch	1.6 μm (CD), 0.74 μm (DVD)	
	Disc Center Hole Diameter	15 mm	
	Disc Formats	DVD-ROM (single and dual layer); DVD-video; DVD-R version 1.0 and 2.0; DVD-RW version 1.0 and 1.1; DVD-R multi-border; DVD+RW; DVD+R ; CD-ROM Mode 1 and 2; CD-DA; CD-ROM XA Mode 2, Form 1 and 2; CD-extra; CD-text; CD-I Mode 2, Form 1 and 2; CD-I ready; video CD, CD-bridge; PhotoCD (single and multi-session); CD-R; CD-RW	
	Disc Capacity	**DVD-ROM**	4.7 GB (DVD-5), 8.54 GB (DVD-9), 9.4 GB (DVD-10), 3.95 GB (DVD-R version 1.0), 4.7 GB (DVD-R version 2.0), 4.7 GB (DVD-RW version 1.0 and 1.1), 4.7 GB (DVD+RW), 4.7G (DVD+R)
		CD-ROM	540 MB (Mode 1, 12 cm), 640 MB (Mode 2, 12 cm), 700 MB (80 minimum CD-R and CD-RW), 180 MB (8 cm)
	Block Size (bytes)	DVD-ROM – 2048; CD-ROM Mode 0 – 2352; CD-ROM Mode 1 – 2352, 2340, 2336, 2048; CD-ROM Mode 2 – 2352, 2340, 2336, 2048	
	Access Times (typical reads, including settling)	**DVD-ROM Single Layer**	< 120 ms
		CD-ROM Mode 1	< 90 ms
		Full Stroke DVD	< 240 ms (seek)
		Full Stroke CD	< 160 ms (seek)
	Data Transfer Rates	2600 – 6000 KB/s (40X CAV CD-ROM mode)	
		8100 – 21,600 KB/s (16X CAV DVD-ROM mode)	
	Data Transfer Modes	PIO Mode 4 (16.6 MB/s); Multi-word DMA mode 2 (16.6 MB/s); UltraDMA Mode 3 (44.4 MB/s)	
	Power	**Source**	Four-pin, DC power receptacle
		DC Power Requirement	5 VDC ± 5% – 100 mV ripple p-p
			12 VDC ± 5% – 200 mV ripple p-p
		DC Current	5 VDC – <800 mA typical, < 1000 mA maximum
			12 VDC – < 870 mA typical
	Audio Output Level	0.7 Vrms (typical)	
	Configuration Jumper Block	Master, slave, and cable select modes	
	Data Interface Connector	40-pin, shrouded and keyed, flat ribbon	
	Environmental (all conditions non-condensing)	**Temperature** (operating)	41° to 122° F (5° to 50° C)
		Relative Humidity (operating)	10% to 85%
		Maximum Wet Bulb Temperature (operating)	86° F (30° C)
	Certifications, Approvals	MMC II support, multi-read certification, Microsoft WHQL certification, ACA AS/NZS 3548 class B, CNS 13438, C.I.S.P.R. Pub 22, TUV or VDE EN60950, EN 55022, EN55024, SEMKO, NEMKO, DEMKO, FIMKO, EN 60825-1, UL 60950, and CSA C22.2 60950-2000.	
	Operating Systems Supported	Microsoft Windows NT, Microsoft Windows 2000, and Microsoft Windows XP.	

TechSpecs - Optical Storage

MultiBay and Slimline 24X CD-ROM Drive	MultiBay Drive	Dimensions (H x W x D)	0.5 x 5.2 x 5.0 in (1.3 x 13.3 x 12.6 cm)
		Weight	0.47 lb (215.0 g)
	Applicable Disk	CD-ROM (Modes 1, 2 and 3), CD-XA ready (Modes 2, Form 1 and 2), CD-I ready (Mode 2, Forms 1 and 2), CD-R (read only), CD Plus, Photo CD (Single and Multi-session), CD-Extra, Video CD, CD-WO (fixed packets only), CD-Bridge	
	Center Hole Diameter	0.6 inch (15 mm)	
	Disk Diameter	4.7 in (12 cm), 3.2 inches (8 cm)	
	Disk Thickness	0.05 in (1.2 mm)	
	Track Pitch	1.6 μm	
	Access Times (typical reads, including settling)	Random	< 150 ms
		Full-Stroke	< 300 ms
	Audio Output Level	Line-out	0.7 Vrm
	Cache Buffer	128 KB	
	Data Transfer Rate (typical, including settling)	Sustained (16X)	2400 Kbps (sustained)
		Variable	1500 to 3600 Kbps (10X to 24X)
		Normal PIO Mode 4 (single burst)	16.7 Mbps
	Start-up Time	< 8 seconds	
	Stop Time	< 4 seconds	

48X/24X/48XCD-RW Drive	Orientation		Either horizontal or vertical
	Disc Loading Mechanism		Half-height, tray load
	Interface Type		ATAPI IDE
	Dimensions—external (W x H x D)		7.99 x 5.88 x 1.71 in (203 x 149.5 x 43.5 mm)
	Weight		2.6 lb (1.2 kg)
	Disc Diameter		12 cm, 8 cm
	Disc Thickness		1.2 mm
	Track Pitch		1.6 m m
	Disc Center Hole Diameter		15 mm
	Reference Scanning Velocity		1.2 m/s
	Recording/Playing Time		80 minutes with CD-R media
	Read Only Disc Prameters	Formats and Modes Supported	CD-ROM—Mode 1; CD-ROM XA—Mode 2 (forms 1 and 2); CD digital audio; CD Extra; CD-I—Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD
		Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
		Block Size	Mode 1—2,048 and 2,352 bytes; mode 2, form 1—2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2—2,328; 2,336; 2,340 and 2,352 bytes; CD-DA—2,352 and 2,368 bytes
	Writeable Disc Parameters	Disc Type	CD-R and CD-RW
		Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
		Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD
		Capacity	185 MB (Mode 2, 8cm); 540 MB (Mode 1, 12 cm); 650 MB (Mode 2, 12 cm); 700 MB (Mode 2, 12 cm)
		Block Size	Mode 1—2,048 bytes; mode 2, form 1—2,048 and 2,352 bytes; mode 2, form 2—2,352 bytes; CD-DA ---2,352 bytes
	Access Times (typical)	Random	< 120 ms
		Full Stroke	< 200 ms
	Data Transfer Rates	Sustained	CD-R write—1,800 KB/s (12X) CD-R write—2400 KB/s (16X) CD-RW write (1-4X media) —600 KB/s (4X) CD-RW write (4-10X media) —1,500 KB/s (10X) CD-RW write (4-12X media) —1,800 KB/s (12X)
		Variable	CD-RW write—2,400 to 3,600 KB/s (16X to 24X) CD-RW write—2,400 to 4,800 KB/s (16X to 32X) CD-RW write—2,400 to 6,000 KB/s (16X to 40X) CD-RW write—2,400 to 7,200 KB/s (16X to 48X) CD-ROM, CD-R read—1,500 to 7,200 KB/s (10X to 48X) CD-RW read—1800 to 4800 KB/s (12X - 32X CAV) Digital audio extraction — 1800 to 4800 KB/s (12X - 32X CAV)
	Data Transfer Modes		ATA PIO mode 4 (16.7MB/s); ATA multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA mode 0 (16.7 MB/s); ATA UltraDMA mode 1 (24 MB/s); ATA UltraDMA mode 2 (33 MB/s) – default.
	Cache Buffer		2 MB (minimum)
	Start-up Time (single)		< 7 seconds typical

Start-up Time (multi-session)	< 30 seconds typical		
Stop Time	< 4 seconds		
Power	**Source**	Four-pin, DC power receptacle	
	DC power requirement	5 VDC ± 5%—100 mV ripple p-p 12 VDC ± 5%—200 mV ripple p-p	
	DC current	5 VCD	< 1A (typical) < 1600 mA (maximum)
		12 VCD	< 600 mA (typical) < 1.4A (maximum)
		Total Drive Power (Standby mode)	< 2.5 watt
Audio Output Level	0.7 Vrms		
Configuration Jumper Block	Master, slave and cable select modes		
Data Interface Connector	50-pin IDE interface		
Environmental (all conditions, non-condensing)	**Temperature** (operating)	41° to 122° F (5° to 50° C)	
	Relative Humidity (operating)	10% to 90%	
	Maximum Wet Bulb Temperature (operating)	84° F (29° C)	
Certifications, Requirements	ACA AS/NZS 3548, ANSI C63.4–1992, CB Test Certificate for IEC 950, CE Mark, CFR 47 part 15, CNS 13438, CSA C22.2 No. 60950, DHHS/FDA - 1040, EN60825, EN55022:1998, EN55024, EN60 950:2000, ICES-003 class B, IEC 61000 4-2 – 4-11, Nordic EN60 950, TUV or VDE EN60 950, UL 60950, C.I.S.P.R. Publication 22 Class B, BSMI, Microsoft P2001, Microsoft Logo for Windows XP, 2000, NT4, ME, 98		
Operating Systems Supported	Microsoft® Windows® XP, Microsoft Windows 2000, Microsoft Windows NT® 4.0		
Option Kit Contents	CD-RW drive, CD-R media, High-Speed CD-RW media, Roxio™ Easy CD Creator, Dantz Retrospect Express Backup for CD-RW, audio cable and installation guide.		

48X Combo CD-RW/DVD-ROM	Disc Loading Mechanism	5.25-inch, half-height, tray-load	
	Color	Carbonite	
	Orientation	Either horizontal or vertical	
	Interface Type	ATAPI	
	Dimensions (W x H x D)	5.77 x 1.71 x 7.36 in (146.5 x 43.5 x 187 mm) (external, excluding bezel)	
	Disc Diameter	12 cm, 8 cm	
	Disc Thickness	0.05 in (1.2 mm)	
	Track Pitch	1.6 um (CD), 0.74 um (DVD)	
	Disc Center Hole Diameter	0.6 in (15 mm)	
	Reference Scanning Velocity	1.2 m/s (CD); 3.49 m/s (DVD SL); 3.84 m/s (DVD DL)	
	Read Only Disc Parameters	Formats and Modes Supported	CD-ROM—Mode 1; CD-ROM XA—Mode 2 (forms 1 and 2); CD-Bridge; CD digital audio; CD Extra; CD-I—Mode 2 (forms 1 and 2) and CD-I-Ready; Photo CD (single and multi-session); video CD; DVD (single- and double-layer); DVD-R; DVD-RW; DVD-RW Multi-Border; DVD+R; DVD+R Multi-Session , and DVD+RW
		Capacity	180 MB (mode 2, 8 cm); 540 MB (mode 1, 12 cm); 650 MB (mode 2, 12 cm); 700 MB (Mode 2, 12 cm); 4.7 GB (DVD-5); 8.54 GB (DVD-9); 9.4 GB (DVD-10)
		Block Size	Mode 1—2,048 and 2,352 bytes; mode 2, form 1—2,048; 2,328; 2,336; 2,340 and 2,352 bytes; mode 2, form 2—2,328; 2,336; 2,340 and 2,352 bytes; CD-DA—2,352 bytes; DVD—2,048 bytes
	Writeable Disc Parameters	Disc Type	CD-R and CD-RW
		Write Methods	Disc at Once, Track at Once, Session at Once, Variable Packet, Fixed Packet
		Format and Modes Supported	CD-ROM (mode 1); CD-ROM XA (mode 2, forms 1 and 2); CD digital audio, CD-I (mode 2, forms 1 and 2); video CD; CD-Bridge; Video CD
		Capacity	180 MB (mode 2, 8 cm); 540 MB (mode 1, 12 cm); 650 MB (mode 2, 12 cm); 700 MB (mode 2, 12 cm);
		Block Size	CD-DA—2,352 bytes; mode 0— 2,336 and 2,352 bytes; mode 1—2,048 and 2,352 bytes; mode 2—2,336 and 2,352; mode 2, form 1—2,048 and 2,352 bytes; mode 2, form 2—2,324 and 2,352 bytes
	Access Times (typical reads, including settling)	Random DVD	< 140 ms (typical)
		Random CD	< 125 ms, (typical)
		Full Stroke DVD	< 250 ms (seek)
		Full Stroke CD	< 210 ms (seek)
	Data Transfer Rates	Sustained — CD-R write	600 KB/s (4X), 1800 KB/s (12X)
		Sustained — CD-RW write	600 KB/s (4X, 1-4X media), 1500 KB/s (10X, 4-10X media)
		Variable — CD-R write	2400 KB/s (16X), 3600 KB/s (24X), 4800 KB/s (48X)
		Variable — CD-ROM, CD-R Read	1500 – 6000 KB/s (10X to 40X)
		Variable — DVD ROM	8112 - 21,632 KB/s (6X - 16X)
		Variable — DVD Video	1352 – 3268 KB/s (2.4X)
		Variable — DVD-R, DVD-RW	1352 – 3268 KB/s (2.4X)
		Variable — DVD+R, DVD-RW	1352 – 3268 KB/s (2.4X)
		Variable — DVD+R, DVD-	1352 – 3268 KB/s (2.4X)

	RW	
	Variable — CD-RW read	1800 to 4800 KB/s (12X - 32X CAV)
	Variable — Digital Audio Extraction	1800 to 4800 KB/s (12X - 32X CAV)
Data Transfer Modes	ATA PIO mode 4 (16.7 MB/s); ATA Multi-word DMA mode 2 (16.7 MB/s); ATA UltraDMA mode 0 (16.7 MB/s); ATA UltraDMA mode 1 (24 MB/s), mode 2 (33 MB/s); ATA UltraDMA Mode 3 44 Mbytes/s (default)	
	Cache Buffer	2 MB (minimum)
	Startup Time (single)	< 7 seconds (typical)
	Startup Time (multi-session)	< 30 seconds (typical)
	Stop Time	< 4 seconds
Power	Source	Four-pin, DC power receptacle
	DC Power Requirement	5 VDC ± 5%—100 mV ripple p-p 12 VDC ± 5%—200 mV ripple p-p
	DC Current	5 VDC (< 1000 mA typical, < 1600 mA maximum) 12 VDC (< 600 mA typical, < 1400 mA maximum)
	Total Drive Power (standby mode)	< 2.5 Watt
Audio Output Level	0.7 Vrms (typical)	
Configuration Jumper Block	Master, slave, and cable select modes	
Data Interface Connector	40-pin, shrouded and keyed, flat ribbon	
Environmental (all conditions non-condensing)	Temperature (operating)	41° to 122° F (5° to 50° C)
	Relative humidity (operating)	10% to 90%
	Maximum wet bulb temperature (operating)	86° F (30° C)
Certifications, Requirements	MPC-3 compliant, multi-read requirements, ACA AS/NZS 3548, ANSI C63.4–1992, ATAPI Spec SFF-8020, ATA Spec X3T9.2, CB Bulletin No. 92A, CSA C22.2 No. 950-1995, C.I.S.P.R. Pub 22, EMKO-TSE 207/94, TUV or VDE EN60 950, EN60825-1, Microsoft PC2001 certification, Microsoft Logo for Windows XP, 2000, and NT4	
Operating Systems Supported	Microsoft Windows NT 4.0, Microsoft Windows 2000, and Microsoft Windows XP. NOTE: MPEG video playback is not supported on Microsoft Windows NT.	
Option Kit Contents	48X Combo CD-RW/DVD-ROM Drive, Roxio™ Easy CD Creator, Dantz Retrospect Express, InterVideo™WinDVD™MPEG Movie Playback software, CD-R media, high-speed CD-RW media, audio cable, and installation guide.	

TechSpecs - Removable Storage

1.44-MB Diskette Drive	**Diskette Size**	3.5 in (8.89 cm)	
	LED Indicators (front panel)	Green	
	Read/Write Capacity per diskette (high/low density)	1.44 MB/720 KB	
	Drive Supported	One	
	Drive Height	One-third	
	Drive Rotation	300 rpm	
	Transfer Rate (high/low)	500/250 Kb/s	
	Bytes/Sector	512	
	Sectors/Track (high/low)	18/9	
	Tracks/Side (high/low)	80/80	
	Access Times	Track-to-Track (high/low)	3/6 ms
		Average (high/low)	169/94 ms
		Settling Time	15 ms
		Latency Average	100 ms

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